

Application No.: 10/065,103

Docket No.: JCLA9142

AMENDMENTS

Please amend the application as indicated hereafter.

In the Specification:

Please amend paragraph [0027] as follows.

[0027] Fig. 4A is a schematic cross-sectional view showing a seventh type of under-bump metallurgical structure between the bonding pad of a die and a solder bump according to a preferred embodiment of this invention. As shown in Fig. 4A, the seventh type of under-bump metallurgical structure 401 includes a metallic layer 410 and a mini bump 422. The metallic layer 410 is formed over a bonding pad 16 and the mini bump 422 is formed between the metallic layer 410 and the solder bump 18. The metallic layer 410, having has a material composition identical to the metallic layer in the first type of under-bump metallurgical structure 201 in Fig. 2A, includes an adhesion layer 412, a barrier layer 414 and a wettable layer 416.

Note that material compositions and properties of the mini bump 422 are identical to the buffer metallic layer 220 in Fig. 2A. For example, the mini bump 422 is capable of wetting the solder bump 18 for increasing the bonding strength between the mini bump 422 and the solder bump 18. Furthermore, the mini bump 422 has a melting point higher than the solder bump 18 to prevent the mini bump 422 from melting away in a high temperature treatment (such as a reflow operation) and incapacitating the capacity to reduce the growth of inter-metallic compound. Due to the aforementioned reasons, the mini bump 422 is preferably made from lead, a lead-tin alloy having a composition of 95% lead with 5% tin or some other materials.